Volume 202 1991

Table of contents

No. 1 1– 216 issued on November 15, 1991
No. 2 217– 688 issued on December 5, 1991
No. 3 689–1352 issued on December 15, 1991

Corrections 1345
Information for Authors 1347–1352
Contents of Volume 202 I–XIV

Announcement

Steroid Reference Collection 1

Reviews

The molecular action of tumor necrosis factor-α
G. Camussi, E. Albano, C. Tetta and F. Bussolino 3– 14

Sulfur-containing cyclic ketimines and imino acids – A novel family of endogenous products in the search for a role
D. Cavallini, G. Ricci, S. Duprè, L. Pecci, M. Costa, R. M. Matarese, B. Pensa, A. Antonucci, S. P. Solinas and M. Fontana 217–223

The mechanism of receptor-mediated endocytosis
E. Smythe and G. Warren 689– 699

Molecular aspects of neuronal voltage-dependent K^+ channels
H. Rehm 701– 713

Protein stability and molecular adaptation to extreme conditions
R. Jaenicke 715– 728

Molecular and cellular aspects of immunologic tolerance
G. J. V. Nossal 729– 737

Nucleic acids, protein synthesis and molecular genetics

Cloning and sequence analysis of cDNA clones for bovine aortic-endothelial-cell transglutaminase
K. Nakanishi, K. Nara, H. Hagiwara, Y. Aoyama, H. Ueno and S. Hirose 15– 21

Biosynthesis, primary structure and molecular cloning of snowdrop (*Galanthus nivalis* L.) lectin
E. J. M. Van Damme, H. Kaku, F. Perini, I. J. Goldstein, B. Peeters, F. Yagi, B. Decock and W. J. Peumans 23– 30

Expression of rat heme oxygenase in *Escherichia coli* as a catalytically active, full-length form that binds to bacterial membranes
K. Ishikawa, M. Sato and T. Yoshida 161–165

Cloning, sequence and transcriptional analysis of the structural gene for LPD-3, the third lipoamide dehydrogenase of *Pseudomonas putida*
J. A. Palmer, K. T. Madhusudhan, K. Hatter and J. R. Sokatch 231–240

Recognition of the folding consensus in RNA secondary structures by the topological-filtering method
G. Benedetti and S. Morosetti 241–248

Cloning and expression of the gene encoding the soluble cytochrome b_{562} of *Escherichia coli*
H. Nikkila, R. B. Gennis and S. G. Sligar 309–313

Primary structure and processing of the *Candida tsukubaensis* α-glucosidase – Homology with the rabbit intestinal sucrase-isomaltase complex and human lysosomal α-glucosidase
B. T. Kinsella, S. Hogan, A. Larkin and B. A. Cantwell 657–664

Sequence-specific complex formation of DNA and a eukaryotic sequence-specific endonuclease, *Sce*I
K. Kawasaki, M. Takahashi, T. Ando and T. Shibata 665–671

Structural characterization of mating pheromone precursors of the ciliate protozoan *Euplotes raikovi* – High conservation of pre and pro regions versus high variability of secreted regions
C. Miceli, A. La Terza, R. A. Bradshaw and P. Luporini 759– 764

A simple procedure for isolation of eukaryotic mRNA polyadenylation factors
A. Åström, J. Åström and A. Virtanen 765– 773

Post-transcriptional regulation of the transferrin receptor and 4F2 antigen heavy chain mRNA during growth activation of spleen cells
S. Teixeira and L. C. Kühn 819– 826

The longest 18S ribosomal RNA ever known – Nucleotide sequence and presumed secondary structure of the 18S rRNA of the pea aphid, *Acyrthosiphon pisum*
O-Y. Kwon, K. Ogino and H. Ishikawa 827– 833

Characterization of a camptothecin-resistant human DNA topoisomerase I in an *in vitro* system for Simian virus 40 DNA replication
Y. Ishimi, M. Nishizawa and T. Andoh 835– 839

Gene sequence of mouse B-type proline-rich protein MP4 – Transcriptional start point and an upstream phylogenetic footprint with ets-like and rel/NFkB-like elements
S. G. E. Roberts, R. Layfield, A. J. Bannister and C. J. McDonald 969– 974

Effect of the amine non-leaving group on the structure and stability of DNA complexes with *cis*-$[Pt(R\text{-}NH_2)_2(NO_3)_2]$
J.-L. Butour, P. Alvinerie, J.-P. Souchard, P. Colson, C. Houssier and N. P. Johnson 975– 980

Base 2661 in *Escherichia coli* 23S rRNA influences the binding of elongation factor Tu during protein synthesis *in vivo*
S. Tapio and L. A. Isaksson 981–984

Transcriptional and post-transcriptional effects of glucose on liver phospho*enol*-pyruvate-carboxykinase gene expression
S. Meyer, W. Höppner and H. J. Seitz 985–991

Molecular cloning of soluble aminopeptidases from *Saccharomyces cerevisiae* — Sequence analysis of aminopeptidase yscII, a putative zinc-metallopeptidase
N. García-Alvarez, R. Cueva and P. Suárez-Rendueles 983–1002

Cloning, sequencing and expression studies of the genes encoding amicyanin and the β-subunit of methylamine dehydrogenase from *Thiobacillus versutus*
M. Ubbink, M. A. G. van Kleef, D.-J. Kleinjan, C. W. G. Hoitink, F. Huitema, J. J. Beintema, J. A. Duine and G. W. Canters 1003–1012

Cell-free synthesis of rat and human catechol *O*-methyltransferase — Insertion of the membrane-bound form into microsomal membranes *in vitro*
I. Ulmanen and K. Lundström 1013–1020

Primary structure of a barley-grain aspartic proteinase — A plant aspartic proteinase resembling mammalian cathepsin D
P. Runeberg-Roos, K. Törmäkangas and A. Östman 1021–1027

Arabidopsis thaliana H1 histones — Analysis of two members of a small gene family
J. S. Gantt and T. R. Lenvik 1029–1039

Two different genes encode fibronectin binding proteins in *Staphylococcus aureus* — The complete nucleotide sequence and characterization of the second gene
K. Jönsson, C. Signäs, H.-P. Müller and M. Lindberg 1041–1048

Protein chemistry and structure

Complete sequence and model for the C_1 subunit of the carotenoprotein, crustacyanin, and model for the dimer, β-crustacyanin, formed from the C_1 and A_2 subunits with astaxanthin
J. N. Keen, I. Caceres, E. E. Eliopoulos, P. F. Zagalsky and J. B. C. Findlay 31–40

Limited proteolysis of tetanus toxin — Relation to activity and identification of cleavage sites
K. G. Krieglstein, A. H. Henschen, U. Weller and E. Habermann 41–51

The solution structures of *Escherichia coli trp* repressor and *trp* aporepressor at an intermediate resolution
C. Arrowsmith, R. Pachter, R. Altman and O. Jardetzky 53–66

Characterization, stability and refolding of recombinant hirudin
A. Otto and R. Seckler 67–73

Localization of a major nidogen-binding site to domain III of laminin B2 chain
M. Gerl, K. Mann, M. Aumailley and R. Timpl 167–174

Complete amino acid sequence of endo-β-*N*-acetylglucosaminidase from *Flavobacterium* sp.
K. Takegawa, B. Mikami, S. Iwahara, Y. Morita, K. Yamamoto and T. Tochikura 175–180

Structural role of amino acids 99–110 in recombinant human erythropoietin
Y. Chern, T. Chung and A. J. Sytkowski 225–229

Self-catalysed affinity labeling of Qβ replicase
A. J. Lindner, S. J. Glaser, C. K. Biebricher and G. R. Hartmann 249–254

Patchwork-structure serpins from silkworm (*Bombyx mori*) larval hemolymph
T. Sasaki 255–261

^{1}H NMR studies of echistatin in solution — Sequential resonance assignments and secondary structure
C. Dalvit, H. Widmer, G. Bovermann, R. Breckenridge and R. Metternich 315–321

Nuclear magnetic resonance studies of the snake toxin echistatin — ^{1}H resonance assignments and secondary structure
R. M. Cooke, B. G. Carter, D. M. A. Martin, P. Murray-Rust and M. P. Weir 323–328

The secondary structure of echistatin from ^{1}H-NMR, circular-dichroism and Raman spectroscopy
V. Saudek, R. A. Atkinson, P. Lepage and J. T. Pelton 329–338

NMR study of the structural characteristics of variants of yeast iso-1-cytochrome *c* in which unvaried aromatic residues have been substituted
A. G. P. Thurgood, A. M. Davies, C. Greenwood, A. G. Mauk, M. Smith, G. Guillemette and G. R. Moore 339–347

Sequence-specific ^{1}H-NMR assignment and secondary structure of the Tyr41 → His mutant of the single-stranded DNA binding protein, gene V protein, encoded by the filamentous bacteriophage M13
P. J. M. Folkers, J. P. M. van Duynhoven, A. J. Jonker, B. J. M. Harmsen, R. N. H. Konings and C. W. Hilbers 349–360

The solution structure of a monomeric insulin — A two-dimensional ^{1}H-NMR study of des-(B26–B30)-insulin in combination with distance geometry and restrained molecular dynamics
R. M. A. Knegtel, R. Boelens, M. L. Ganadu and R. Kaptein 447–458

Determination of the orientations of tryptophan analogues bound to the *trp* repressor and the relationship to activation
K. L. B. Borden, P. Beckmann and A. N. Lane 459–470

Efficient expression of bovine α-lactalbumin in *Saccharomyces cerevisiae*
A. Viaene, G. Volckaert, M. Joniau, A. De Baetselier and F. Van Cauwelaert 471–477

Mollusc-specific toxins from the venom of *Conus textile neovicarius*
M. Fainzilber, D. Gordon, A. Hasson, M. E. Spira and E. Zlotkin 589–595

Disulfide-bonded dimerization of fibronectin *in vitro*
T. Vartio and P. Kuusela 597–604

Identification and characterization of *Heliothis virescens* midgut membrane proteins binding *Bacillus thuringiensis* δ-endotoxins
P. Oddou, H. Hartmann and M. Geiser 673–680

αB-crystallin exists as an independent protein in the heart and in the lens
S. P. Bhat, J. Horwitz, A. Srinivasan and L. Ding 775–781

Primary structure of protein moiety of *Penicillium notatum* phospholipase B deduced from the cDNA
N. Masuda, N. Kitamura and K. Saito 783–787

Site-directed mutagenesis of the dihydrolipoyl transacetylase component (E2p) of the pyruvate dehydrogenase complex from *Azotobacter vinelandii* — Binding of the peripheral components E1p and E3
E. Schulze, A. H. Westphal, H. Boumans and A. de Kok 841–848

Amino acid sequence of PR-39 — Isolation from pig intestine of a new member of the family of proline-arginine-rich antibacterial peptides
B. Agerberth, J.-Y. Lee, T. Bergman, M. Carlquist, H. G. Boman, V. Mutt and H. Jörnvall 849–854

5'-Nucleotidase from the electric ray electric lobe — Primary structure and relation to mammalian and procaryotic enzymes
W. Volknandt, M. Vogel, J. Pevsner, Y. Misumi, Y. Ikehara and H. Zimmermann 855–861

The conformational stability of the redox states of lipoamide dehydrogenase from *Azotobacter vinelandii*
W. J. H. van Berkel, A. G. Regelink, J. J. Beintema and A. de Kok 1049–1055

The effect of enhanced α-helicity on the activity of a winter flounder antifreeze polypeptide
A. Chakrabartty and C. L. Hew 1057–1063

Oxidation-reduction potentials of ferredoxin-NADP$^+$ reductase and flavodoxin from *Anabaena* PCC 7119 and their electrostatic and covalent complexes
J. J. Pueyo, C. Gomez-Moreno and S. G. Mayhew 1065–1071

Ornatins: potent glycoprotein IIb-IIIa antagonists and platelet aggregation inhibitors from the leech *Placobdella ornata*
P. Mazur, W. J. Henzel, J. L. Seymour and R. A. Lazarus 1073–1082

Refolding kinetics of pig muscle and yeast 3-phosphoglycerate kinases and of their proteolytic fragments
G. V. Semisotnov, M. Vas, V. V. Chemeris, N. J. Kashparova, N. V. Kotova, O. I. Razgulyaev and M. A. Sinev 1083–1089

Redox and flavin-binding properties of recombinant flavodoxin from *Desulfovibrio vulgaris* (Hildenborough)
G. P. Curley, M. C. Carr, S. G. Mayhew and G. Voordouw 1091–1100

A thermodynamic model for the cooperative functional properties of the tetraheme cytochrome c_3 from *Desulfovibrio gigas*
M. Coletta, T. Catarino, J. LeGall and A. V. Xavier 1101–1106

Kinetic study of the reduction mechanism for *Desulfovibrio gigas* cytochrome c_3
T. Catarino, M. Coletta, J. LeGall and A. V. Xavier 1107–1113

Surface topography of histidine residues in lysozymes
Y.-j. Zhao, E. Sulkowski and J. Porath 1115–1119

Physical characterization and sequence identification of the ovary maturating parsin — A new neurohormone purified from the nervous corpora cardiaca of the African locust (*Locusta migratoria migratorioides*)
J. Girardie, O. Richard, J.-C. Huet, C. Nespoulous, A. Van Dorsselaer and J.-C. Pernollet 1121–1126

Rate constants and equilibrium constants for binding of actin to the 1:1 gelsolin-actin complex
B. Schoepper and A. Wegner 1127–1131

Carboxy-terminal truncated rhuIFN-γ with a substitution of Gln133 or Ser132 to leucine leads to higher biological activity than in the wild type
O. Slodowski, J. Böhm, B. Schöne and B. Otto 1133–1140

Fulvic acid disturbs processing of procollagen II in articular cartilage of embryonic chicken and may also cause Kashin-Beck disease
C. Yang, M. Bodo, H. Notbohm, A. Peng and P. K. Müller 1141–1146

Inhibitory activity and conformational transition of α_1-proteinase inhibitor variants
A. J. Schulze, R. Huber, E. Degryse, D. Speck and R. Bischoff 1147–1155

A comparison of the reactivity and stability of wild type and His388→Gln mutant phosphoglycerate kinase from yeast
C. M. Johnson, A. Cooper and A. J. P. Brown 1157–1164

The primary structure of ammodytin L, a myotoxic phospholipase A_2 homologue from *Vipera ammodytes* venom
I. Križaj, A. L. Bieber, A. Ritonja and F. Gubenšek 1165–1168

Enzymology

Purification and biochemical characterization of dog gastric lipase
F. Carrière, H. Moreau, V. Raphel, R. Laugier, C. Benicourt, J.-L. Junien and R. Verger 75–83

Purification and characterization of a monomeric isocitrate dehydrogenase with dual coenzyme specificity from the photosynthetic bacterium *Rhodomicrobium vannielii*
M. L. Leyland and D. J. Kelly 85–93

Recombinant aprotinin homologue with new inhibitory specificity for cathepsin G
T. Brinkmann, S. Schnierer and H. Tschesche 95–99

The kinetic mechanism of the reactions catalyzed by the glutamate synthase from *Azospirillum brasilense*
M. A. Vanoni, L. Nuzzi, M. Rescigno, G. Zanetti and B. Curti 181–189

Specificity of glucose transport in *Trypanosoma brucei* – Effective inhibition by phloretin and cytochalasin B
A. Seyfang and M. Duszenko 191–196

Role of aspartic acid 38 in the cofactor specificity of *Drosophila* alcohol dehydrogenase
Z. Chen, W. R. Lee and S. H. Chang 263–267

Specific inhibition of endopeptidase 24.16 by dipeptides
P. Dauch, J.-P. Vincent and F. Checler 269–276

Single amino acid substitutions in the B870 α and β light-harvesting polypeptides of *Rhodobacter capsulatus* – Structural and spectral effects
M. Babst, H. Albrecht, I. Wegmann, R. Brunisholz and H. Zuber 277–284

Atrial natriuretic peptide (ANP) is a high-affinity substrate for rat insulin-degrading enzyme
D. Müller, H. Baumeister, F. Buck and D. Richter 285–292

Human kidney hexosaminidase A and hexosaminidase B form a complex
A. V. Pshezhetsky, O. A. Buneeva and V. M. Dvorkin 361–365

Structural and functional relationships in two families of β-1,4-glycanases
N. R. Gilkes, M. Claeyssens, R. Aebersold, B. Henrissat, A. Meinke, H. D. Morrison, D. G. Kilburn, R. A. J. Warren and R. C. Miller Jr 367–377

The effect of water content and nature of organic solvent on enzyme activity in low-water media – A quantitative description
S. H. M. van Erp, E. O. Kamenskaya and Y. L. Khmelnitsky 379–384

Simulation of the electrochemical behavior of multi-redox systems – Current potential studies on multiheme cytochromes
C. Moreno, A. Campos, M. Teixeira, J. LeGall, M. I. Montenegro, I. Moura, C. van Dijk and J. G. J. Moura 385–393

Inactivation of pancreatic and gastric lipases by tetrahydrolipstatin and alkyl-dithio-5-(2-nitrobenzoic acid) – A kinetic study with 1,2-didecanoyl-*sn*-glycerol monolayers
S. Ransac, Y. Gargouri, H. Moreau and R. Verger 395–400

Mechanism of action of deoxyribonuclease II from human lymphoblasts
I. Harosh, D. M. Binninger, P. V. Harris, M. Mezzina and J. B. Boyd 479–484

Geotrichum candidum produces several lipases with markedly different substrate specificities
C. M. Sidebottom, E. Charton, P. P. J. Dunn, G. Mycock, C. Davies, J. L. Sutton, A. R. Macrae and A. R. Slabas 485–491

Notechis 11'2, a non-toxic phospholipase A_2 from the venom of *Notechis scutatus scutatus*
C. Bouchier, P. Boyot, F. Tesson, O. Trémeau, F. Bouet, D. Hodgson, J.-C. Boulain and A. Ménez 493–500

Effect of N-glycan removal on the enzymatic activity of porcine thyroid peroxidase
Y. Long, J.-L. Franc, J. Kaniewski, J. Lanet and A. Giraud 501–505

Synthesis of dinucleoside polyphosphates catalyzed by firefly luciferase
M. A. G. Sillero, A. Guranowski and A. Sillero 507–513

Isolation of a novel type-I fatty-acid synthetase from *Euglena gracilis* – Specific derepression in streptomycin-bleached cells
U. Siebenlist, S. Wohlgemuth, K. Finger and E. Schweizer 515–519

Purification and characterization of two xylanases from *Trichoderma longibrachiatum*
J. C. Royer and J. P. Nakas 521–529

Site-directed mutagenesis and epitope-mapped monoclonal antibodies define a catalytically important conformational difference between human placental and germ cell alkaline phosphatase
M. F. Hoylaerts and J. L. Millán 605–616

Purification and characterization of the cytosolic $NADP^+$-dependent malic enzyme from human breast cancer cell line
G.-G. Chang, J.-K. Wang, T.-M. Huang, H.-J. Lee, W.-Y. Chou and C.-L. Meng 681–688

Characterization of glutamate-1-semi-aldehyde aminotransferase of *Synechococcus* – Steady-state kinetic analysis
M. A. Smith, C. G. Kannangara, B. Grimm and D. von Wettstein 749–757

Characterization and distribution of *cis*-prenyl transferase participating in liver microsomal polyisoprenoid biosynthesis
J. Ericsson, A. Thelin, T. Chojnacki and G. Dallner 789–796

Site-directed mutagenesis of the conserved histidine residue of phospho*enol*pyruvate carboxylase – His138 is essential for the second partial reaction
K. Terada and K. Izui 797–803

Lipoamide dehydrogenase from *Azotobacter vinelandii*: site-directed mutagenesis of the His450-Glu455 diad – Spectral properties of wild type and mutated enzymes
J. Benen, W. van Berkel, Z. Zak, T. Visser, C. Veeger and A. de Kok 863–872

An 100-kDa arachidonate-mobilizing phospholipase A_2 in mouse spleen and the macrophage cell line J774 – Purification, substrate interaction and phosphorylation by protein kinase C
J. Wijkander and R. Sundler 873–880

Purification and properties of L-alanine aminotransferase from *Chlamydomonas reinhardtii*
B. Lain-Guelbenzu, J. Cárdenas and J. Muñoz-Blanco 881–887

Synthesis and evaluation of (+) and (−)-2,2-difluorocitrate as inhibitors of rat-liver ATP-citrate lyase and porcine-heart aconitase
B. A. Saxty, R. Novelli, R. E. Dolle, L. I. Kruse, D. G. Reid, P. Camilleri and T. N. C. Wells 889–896

Functional expression of the cDNAs encoding rat 11β-hydroxylase [cytochrome *P*450(11β)] and aldosterone synthase [cytochrome *P*450(11β, aldo)]
Y. Nonaka and M. Okamoto 897–902

Over-production, purification and properties of the uridine diphosphate *N*-acetylmuramoyl-L-alanine:D-glutamate ligase from *Escherichia coli*
F. Pratviel-Sosa, D. Mengin-Lecreulx and J. van Heijenoort 1169–1176

Mechanism of action of the calpain activator protein in rat skeletal muscle
M. Michetti, P. L. Viotti, E. Melloni and S. Pontremoli 1177–1180

NMR studies of lantibiotics — The structure of nisin in aqueous solution
F. J. M. Van De Ven, H. W. Van Den Hooven, R. N. H. Konings and C. W. Hilbers 1181–1188

Extremely thermostable glutamate dehydrogenase from the hyperthermophilic archaebacterium *Pyrococcus furiosus*
V. Consalvi, R. Chiaraluce, L. Politi, R. Vaccaro, M. De Rosa and R. Scandurra 1189–1196

Sequence and properties of β-xylosidase from *Bacillus pumilus* IPO — Contradiction of the previous nucleotide sequence
W.-Z. Xu, Y. Shima, S. Negoro and I. Urabe 1197–1203

Hydrogen-forming and coenzyme-F_{420}-reducing methylene tetrahydromethanopterin dehydrogenase are genetically distinct enzymes in *Methanobacterium thermoautotrophicum* (Marburg)
R. von Bünau, C. Zirngibl, R. K. Thauer and A. Klein 1205–1208

Purification and characterisation of bovine spleen ADPase
F. D. L. Moodie, H. Baum, P. J. Butterworth and T. J. Peters 1209–1215

Characterization of the epoxide hydrolase from an epichlorohydrin-degrading *Pseudomonas* sp.
M. H. J. Jacobs, A. J. Van Den Wijngaard, M. Pentenga and D. B. Janssen 1217–1222

Mercurial activation of human polymorphonuclear leucocyte procollagenase
J. Bläser, V. Knäuper, A. Osthues, H. Reinke and H. Tschesche 1223–1230

Purification of two forms of arachidonate 15-lipoxygenase from human leukocytes
T. Izumi, O. Rådmark, H. Jörnvall and B. Samuelsson 1231–1238

Properties of two high-molecular-mass forms of glyceraldehyde-3-phosphate dehydrogenase from spinach leaf, one of which also possesses latent phosphoribulokinase activity
S. Clasper, J. S. Easterby and R. Powls 1239–1246

Cloning and molecular characterization of the *Hgi*CI restriction/modification system from *Herpetosiphon giganteus* Hpg9 reveals high similarity to *Ban*I
D. Erdmann, A. Düsterhöft and M. Kröger 1247–1256

Carbohydrates, lipids and other natural products

Isolation and characterization of a new variant of surfactin, the [Val7]surfactin
F. Peypoux, J.-M. Bonmatin, H. Labbé, B. C. Das, M. Ptak and G. Michel 101–106

Heparinase II from *Flavobacterium heparinum* — HPLC analysis of the saccharides generated from chemically modified heparins
C. F. Moffat, M. W. McLean, W. F. Long and F. B. Williamson 531–541

Structural studies on sulfated oligosaccharides derived from the carbohydrate-protein linkage region of chondroitin sulfate proteoglycans of whale cartilage
K. Sugahara, M. Masuda, T. Harada, I. Yamashina, P. de Waard and J. F. G. Vliegenthart 805–811

Substrate specificity of rat liver cytosolic α-D-mannosidase — Novel degradative pathway for oligomannosidic type glycans
J.-F. Haeuw, G. Strecker, J.-M. Wieruszeski, J. Montreuil and J.-C. Michalski 1257–1268

Small and medium-angle X-ray analysis of bacterial lipoteichoic acid phase structure
H. Labischinski, D. Naumann and W. Fischer 1269–1274

Physical and inorganic biochemistry

Aluminum interrupts the formation of alkaline-ribonuclease-inhibitor complex from bovine brain
S.-W. Cho and G.-Y. Kim 107–111

A calorimetric study of the Ni(II)-5'AMP system — A base-stacking stabilization
L. A. Herrero, A. M. Calafat and A. Terrón 401–404

Biochemical and biophysical investigations of the ferrocene-iron-loaded rat — An animal model of primary haemochromatosis
R. J. Ward, A. L. Florence, D. Baldwin, C. Abiaka, F. Roland, M. H. Ramsey, D. P. E. Dickson, T. J. Peters and R. R. Crichton 405–410

Direct electrochemistry of proteins — Investigations of yeast cytochrome *c* mutants and their complexes with cytochrome b_5
A. L. Burrows, L.-H. Guo, H. A. O. Hill, G. McLendon and F. Sherman 543–549

Hypochlorous acid and myeloperoxidase-catalyzed oxidation of iron-sulfur clusters in bacterial respiratory dehydrogenases
J. K. Hurst, W. C. Barrette, Jr., B. R. Michel and H. Rosen 1275–1282

Mutation of the pseudo-EF-hand of calbindin D_{9k} into a normal EF-hand — Biophysical studies
C. Johansson, P. Brodin, T. Grundström, S. Forsén and T. Drakenberg 1283–1290

EPR characterization of a high-spin system in carbon monoxide dehydrogenase from *Methanothrix soehngenii*
M. S. M. Jetten, A. J. Pierik and W. R. Hagen 1291–1297

Membranes and bioenergetics

Tracking of proton flow during transition from anaerobiosis to steady state — 1. Response of matrix pH indicators
S. Luvisetto, I. Schmehl, C. Cola and G. F. Azzone 113–120

Tracking of proton flow during transition from anaerobiosis to steady state – 2. Effect of cation uptake on the response of a hydrophobic membrane bound pH indicator
S. Luvisetto, C. Cola, I. Schmehl and G. F. Azzone 121–130

Lysine excretion by *Corynebacterium glutamicum* – 1. Identification of a specific secretion carrier system
S. Bröer and R. Krämer 131–135

Lysine excretion by *Corynebacterium glutamicum* – 2. Energetics and mechanism of the transport system
S. Bröer and R. Krämer 137–143

The distribution of permeant ions demonstrates the presence of at least two distinct electrical gradients in bloodstream forms of *Trypanosoma brucei*
D. P. Nolan and H. P. Voorheis 411–420

Volume changes in high-affinity calcium binding of the sarcoplasmic reticulum calcium-transport enzyme
S. Stephan and W. Hasselbach 551–557

Kinetic characterization of the normal and procaine-perturbed reaction cycles of the sarcoplasmic reticulum calcium pump
F. Henao, B. de Foresta, S. Orlowski, A. Cuenda, C. Gutiérrez-Merino and P. Champeil 559–567

Effect of calcium ions and inhibitors on internal NAD(P)H dehydrogenases in plant mitochondria
A. G. Rasmusson, I. M. Møller 617–623

Temperature dependence of charge recombination from the $P^+Q_A^-$ and $P^+Q_B^-$ states in photosynthetic reaction centers isolated from the thermophilic bacterium *Chloroflexus aurantiacus*
G. Venturoli, M. Trotta, R. Feick, B. A. Melandri and D. Zannoni 625–634

Analysis of excitation-contraction-coupling components in chronically stimulated canine skeletal muscle
K. Ohlendieck, F. N. Briggs, K. F. Lee, A. W. Wechsler and K. P. Campbell 739– 747

Characterization of SH groups in porin of bovine heart mitochondria – Porin cysteines are localized in the channel walls
V. De Pinto, J. A. Al Jamal, R. Benz, G. Genchi and F. Palmieri 903– 911

Secondary structure of the membrane-bound form of the pore-forming domain of colicin A – A attenuated total-reflection polarized Fourier-transform infrared spectroscopy study
E. Goormaghtigh, L. Vigneron, M. Knibiehler, C. Lazdunski and J.-M. Ruysschaert 1299–1305

Substitution of the cysteinyl residue (Cys21) of subunit *b* of the ATP synthase from *Escherichia coli*
S. Kauffer, G. Deckers-Hebestreit and K. Altendorf 1307–1312

Purification and characterization of the F_1 portion of the ATP synthase (F_1F_o) of *Streptomyces lividans*
M. Hensel, G. Deckers-Hebestreit and K. Altendorf 1313–1319

Metabolism and metabolic regulation

Rat liver-type phosphofructokinase mRNA – Structure, tissue distribution and regulation
K. Hotta, H. Nakajima, T. Yamasaki, T. Hamaguchi, M. Kuwajima, T. Noguchi, T. Tanaka, N. Kono, S. Tarui 293–298

Combined glyceraldehyde-3-phosphate dehydrogenase/phosphoglycerate kinase in catecholamine-stimulated guinea-pig cardiac muscle – Comparison with mass-action ratio of creatine kinase
R. Bünger, N. Mukohara, Y.-H. Kang and R. T. Mallet 913– 921

Investigation of the existence and biological role of L-arginine/nitric oxide pathway in human platelets by spin-trapping/EPR studies
L. Prónai, K. Ichimori, H. Nozaki, H. Nakazawa, H. Okino, A. J. Carmichael and C. M. Arroyo 923– 930

Aldehyde dehydrogenase induction by glutamate in *Escherichia coli* – Role of 2-oxoglutarate
F. X. Quintilla, L. Baldoma, J. Badia and J. Aguilar 1321–1325

Mechanisms of dramatic fluctuations of ornithine decarboxylase activity upon tonicity changes in primary cultured rat hepatocytes
Y. Tohyama, T. Kameji and S.-i. Hayashi 1327–1331

Signal transduction and molecular neurobiology

Ca^{2+} ionophore A23187 and thrombin inhibit the pertussis-toxin-induced ADP-ribosylation of the α-subunit of the inhibitory guanine-nucleotide-binding protein and other proteins in human platelets
W. Siess, B. Wilhelm, M. Aepfelbacher and J. M. Gennity 145–150

Pericytes of the brain microvasculature express γ-glutamyl transpeptidase
A. Frey, B. Meckelein, H. Weiler-Güttler, B. Möckel, R. Flach and H. G. Gassen 421–429

Functional modification by cholera-toxin-catalyzed ADP-ribosylation of a guanine-nucleotide-binding regulatory protein serving as the substrate of pertussis toxin
T. Iiri, Y. Ohoka, M. Ui and T. Katada 635–641

Phorbol esters inhibit the activity of the chicken acetylcholine receptor α-subunit gene promoter – Role of myogenic regulators
R. Laufer, A. Klarsfeld and J.-P. Changeux 813– 818

Structure and properties of a ubiquitously expressed protein kinase C, nPKCδ
K. Mizuno, K. Kubo, T. C. Saido, Y. Akita, S.-i. Osada, T. Kuroki, S. Ohno and K. Suzuki 931– 940

Activation of a keratinocyte, phospholipase A_2 by bradykinin and 4β-phorbol 12-myristate 13-acetate – Evidence for a receptor-GTP-binding protein versus a protein-kinase-C mediated mechanism
R. Kast, G. Fürstenberger and F. Marks 941– 950

Characterization of a guanosine-nucleotide-binding-regulatory-protein-coupled receptor for pituitary adenylate-cyclase-activating polypeptide on plasma membranes from rat brain
H. Schäfer, R. Schwarzhoff, W. Creutzfeldt and W. E. Schmidt 951–958

Analysis of calcium binding to α-lactalbumin using a fluorescent calcium indicator
M. Eberhard and P. Erne 1333–1338

Molecular cell biology

Interferon-γ/lipopolysaccharide-treated mouse embryonic fibroblasts are killed by a glycolysis/L-arginine-dependent process accompanied by depression of mitochondrial respiration
R. Dijkmans and A. Billiau 151–159

Ubiquitin in a lower plant — Characterization of ubiquitin-encoding DNA and RNA from *Chlamydomonas reinhardii*
L. Pollmann, J. von Kampen and M. Wettern 197–204

Two lipid-anchored cAMP-binding proteins in the yeast *Saccharomyces cerevisiae* are unrelated to the R subunit of cytoplasmic protein kinase A
G. Müller and W. Bandlow 299–308

Characterization of muscle and non muscle *Xenopus laevis* tropomyosin mRNAs transcribed from the same gene — Developmental and tissue-specific expression
S. Hardy, M. Y. Fiszman, H. B. Osborne and P. Thiebaud 431–440

Restriction enzymes permit quantitative determination of defined chromatin structures within the chromosome
R. S. Jack, P. Moritz and S. Cremer 441–446

The medium chains of the mammalian clathrin-associated proteins have a homolog in yeast
Y. Nakayama, M. Goebl, B. O'Brine Greco, S. Lemmon, E. Pingchang Chow and T. Kirchhausen 569–574

Expression and post-transcriptional regulation of ornithine decarboxylase during early *Xenopus* development
H. B. Osborne, C. Duval, L. Ghoda, F. Omilli, T. Bassez and P. Coffino 575–581

Complete primary structure of porcine tenascin — Detection of tenascin transcripts in adult submaxillary glands
T. Nishi, J. Weinstein, W. M. Gillespie and J. C. Paulson 643–648

Activation of O_2^--generating oxidase in an heterologous cell-free system derived from Epstein-Barr-virus-transformed human B lymphocytes and bovine neutrophils — Application to the study of defects in cytosolic factors in chronic granulomatous disease
L. Cohen-Tanugi, F. Morel, M.-C. Pilloud-Dagher, J. M. Seigneurin, P. François, M. Bost and P. V. Vignais 649–655

Expression of the wild-type and mutated vacuolar storage protein phaseolin in *Xenopus* oocytes reveals relationships between assembly and intracellular transport
A. Ceriotti, E. Pedrazzini, M. S. Fabbrini, M. Zoppe, R. Bollini and A. Vitale 959–968

The activation of expressed cGMP-dependent protein kinase isozymes Iα and Iβ is determined by the different amino-termini
P. Ruth, W. Landgraf, A. Keilbach, B. May, C. Egleme and F. Hofmann 1339–1344

Developmental biochemistry and immunology

Development-dependent expression of isozymogens of monkey pepsinogens and structural differences between them
T. Kageyama, K. Tanabe and O. Koiwai 205–215

Expression of *CYP2D6* in developing human liver
J.-M. Treluyer, E. Jacqz-Aigrain, F. Alvarez and T. Cresteil 583–588

Indexed in *Current Contents*